8. ABSTRACT

A twisted/splayed O-plate compensation device, in accordance with the invention, is comprised of an organic liquid crystal polymer thin film and possibly one or more other birefringent layers. The O-plate thin film is a birefringent medium with its optical symmetry axis, on average, oriented obliquely with the surface of the film. Within this constraint, the direction of the material's optical symmetry axis is allowed to vary continuously along the axis normal to the film surface. Such films may be fabricated by applying thin layers of chiral doped nematic or smectic liquid crystal monomer solutions in inert solvents to transparent substrates. The carrier solvents are then evaporated and the monomers polymerized by UV irradiation. Compensation devices may also be comprised of multiple layers of twisted/splayed O-plate material in conjunction with A-plates, C-plates, and simple O-plates. Fabrication techniques for twisted/splayed O-plates are described.

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